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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,396	01/16/2004	Ryoichi Kajiwara	503.38097CX1	6074

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EXAMINER

CHAMBLISS, ALONZO

ART UNIT PAPER NUMBER

2814

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/758,396

Applicant(s)

KAJIWARA ET AL.

Examiner

Alonzo Chambliss

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-8 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1,2 and 4-8 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on 10/7/05 have been fully considered and made of record in the instant application.

Response to Arguments

2. Applicant's arguments filed 10/7/05 have been fully considered but they are not persuasive.

In regards to Kasem discloses a connection between two precious metals as recited in the present claims. Osawa is relied upon to disclose a connection between two precious metals as recited in the present claims (see col. 4 lines 37-67 and col. 5 lines 1-20; Figs. 4 and 5A-5E).

In response to Applicant's piecemeal analysis of Kasem, Nakamura, and Osawa, it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasem et al. (U.S. 6,249,041) in view of Nakamura (JP 1-266752) and Osawa et al. (U.S. 6,077,727).

With respect to Claims 1, 2, and 4, Kasem discloses a semiconductor substrate 12 (i.e. chip) and a semiconductor element (i.e. chip), which comprises the semiconductor substrate 12. Kasem discloses a semiconductor element attached to a first metallic member 26 (i.e. lead) and a second metallic member 32 (i.e. lead) by solder bumps (i.e. plural protruding electrodes) in an alternative embodiment (see col. 4 lines 10-20, Figs. 1A and 1B). Kasem does not explicitly disclose a first and second electrodes provided on a front and rear planes of the chip. However, since solder bumps (i.e. plural protruding electrodes) are used in the alternate embodiment on the front and rear planes. It is well known in the semiconductor industry to connect Au solder bumps to Al electrode pads as evident by Nakamura (see Figs. 1-3). Thus, the first metallic member 26 is connected to the first electrode and a second metallic

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electrode 32 is connected to the second electrode. The second electrode is connected to the second metallic member 32 via a metallic layer (i.e. bumps). Kasem fails to disclose second electrode that is connected to the second metallic member via a metallic layer containing precious metal, wherein the metal layer is a composite metal layer comprised of a first precious metal layer provided at the front plane of the second electrode and a second precious metal layer adhered thereto by compression bonding provided at the front plane of the second metallic member. However, Osawa discloses an electrode 2 that is connected to the metallic member 14 via a metallic layer 23 containing precious metal, wherein the metal layer 23 is a composite metal layer comprised of a first precious metal layer 23a provided at the front plane of the electrode 2 and a second precious metal layer 23c adhered thereto by compression bonding provided at the front plane of the metallic member 14 (see col. 4 lines 37-67 and col. 5 lines 1-20, Figs. 4 and 5A-5E). Thus, at least 80% of an area of a respective Au/Al bonding region is contacting a Au bump, wherein the bonding region is made of an Au/Al alloy layer in the thickness direction. Therefore, it would have been obvious to incorporate the composite metal layer to the metallic member, since the composite metal layer would improve the electrical connection between the metallic member and a bump as taught by Osawa.

With respect to Claim 4, Kasem discloses wherein a surface part of the first metallic member for connecting to outer wirings and a surface part of the second metallic member are substantially positioned in a same plane (see Figs. 2B-2D, 3B, and 6B).

With respect to Claim 6, Osawa discloses the metallic layer made of a metal alloy layer having a solid phase temperature of more than 400° C and containing the precious metal as a main component (i.e. gold/copper).

With respect to Claim 7, Osawa discloses wherein at least one of a bump electrode made of an Ag particle mixed with resin (see col. 4 lines 10-20).

With respect to Claim 8, Kasem discloses the first metallic member that is connected to plural outer wirings extended from a part having a connecting part of the first electrode.

The prior art made of record and not relied upon is cited primarily to show the product of the instant invention.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

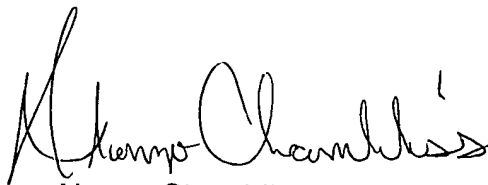
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (571) 272-1927.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system see <http://pair-dkect.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or EBC_Support@uspto.gov.

AC/December 14, 2005



Alonzo Chambliss
Primary Patent Examiner
Art Unit 2814